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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant (s): Terry W. Balko, et al.

Serial No.: 10/816,611

Group Art Unit: 1616

Filed: April 2, 2004

Examiner: Qazi, Sabiha Naim

For: 6-ALKYL OR ALKENYL-4-AMINOPICOLINATES AND THEIR USE AS
HERBICIDESI HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING
TRANSMITTED VIA FACSIMILE TO 571-273-8300 AND ADDRESSED
TO: COMMISSIONER FOR PATENTS, ALEXANDRIA, VA 22313 ON:

MARCH 3, 2008

DATE OF DEPOSIT

MELANIE S. BRADLEY

PRINT OR TYPE NAME OF PERSON SIGNING CERTIFICATE

Melanie S. Bradley

SIGNATURE OF PERSON SIGNING CERTIFICATE

March 3, 2008

DATE OF SIGNATURE

Commissioner for Patents
PO Box 1450
Alexandria, Virginia 22313

Sir:

AUTHORIZATION FOR PAYMENT OF FEES

Filed herewith is the Appellants' Brief Under 37 C.F.R. § 41.37. The filing date of the application is as noted above.

The \$500.00 fee for the filing of this Appellants' Brief required under §41.20 (b)(2) may be charged to our Deposit Account No. 04-1529. If this amount is incorrect, please credit or debit our Deposit Account.

03/05/2008 FMETEK11 00000023 041529 10816611

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Respectfully submitted,

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Commissioner for Patents
PO Box 1450
Alexandria, Virginia 22313

Sir:

Appellants' Brief Under 37 C.F.R. § 41.37

This is an Appeal from the decision of the Primary Examiner, dated February 6, 2008, finally rejecting Claims 1 and 3-6 of the application.

The Oral Hearing is waived. The fee set forth in § 41.20 (b) (2) accompanies Appellants' Brief.

(1) Real Party in Interest

The real party in interest is the assignee Dow AgroSciences LLC.

(2) Related Appeals and Interferences

There are no appeals or interferences known to Appellants, the Appellants' legal representation or assignee which will directly affect or be directly affected by or have a bearing on the present Appeal.

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(3) Status of the Claims

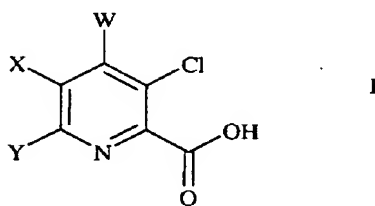
Claims 1 and 3-6 stand rejected and are being appealed. The claims are contained in Appendix I attached hereto.

(4) Status of Amendments

No amendments have been filed subsequent to the Final Rejection.

(5) Summary of Claimed Subject Matter

Claim 1 is directed to compounds of formula I



wherein

X represents F;

Y represents C₁-C₄ alkyl, C₁-C₄ alkoxy substituted C₁-C₄ alkyl, C₁-C₄ thioalkoxy substituted C₁-C₄ alkyl, or C₂-C₃ alkenyl; and

W represents -NO₂, -N₃, -NR₁R₂, -N=CR₃R₄ or -NHN=CR₃R₄

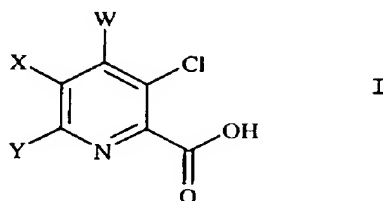
wherein

R₁ and R₂ independently represent H, C₁-C₆ alkyl, C₃-C₆ alkenyl, C₃-C₆ alkynyl, aryl, hydroxy, C₁-C₆ alkoxy, amino, C₁-C₆ acyl, C₁-C₆ carboalkoxy, C₁-C₆ alkylcarbonyl, C₁-C₆ alkylsulfonyl, C₁-C₆ trialkylsilyl or C₁-C₆ dialkyl phosphonyl; and

R₃ and R₄ independently represent H, C₁-C₆ alkyl, C₃-C₆ alkenyl, C₃-C₆ alkynyl or aryl; and

agriculturally acceptable derivatives of the carboxylic acid group or the 4-amino group.

Claim 5 is directed to herbicidal compositions containing a herbicidally effective amount of a compound of formula I



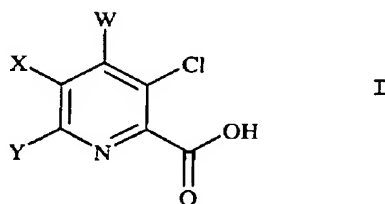
wherein

X represents H or F;

Y represents C₁-C₄ alkyl, C₁-C₄ alkoxy substituted C₁-C₄ alkyl, C₁-C₄ thioalkoxy substituted C₁-C₄ alkyl, or C₂-C₃ alkenyl; and the other substituents are as in Claim 1

in admixture with an agriculturally acceptable adjuvant or carrier.

Claims 6 is directed to a method of controlling undesirable vegetation which comprises contacting the vegetation or the locus thereof with or applying to the soil to prevent the emergence of vegetation an herbicidally effective amount of a compound of formula I



wherein

X represents H or F;

Y represents C₁-C₄ alkyl, C₁-C₄ alkoxy substituted C₁-C₄ alkyl, C₁-C₄ thioalkoxy substituted C₁-C₄ alkyl, or C₂-C₃ alkenyl; and the other substituents are as in Claim 1.

It should be noted that for the compound claim (Claim 1) X is defined solely as F, while in the composition and method of use claims (Claims 5 and 6), X is defined as both H and F.

(6) Grounds of Rejection to be Reviewed on Appeal

Claims 1 and 3-6 have been finally rejected on the ground of non-statutory obviousness-type double patenting in view of U.S. Patent 6,352,635 (Krumel *et al.*) and under 35 U.S.C. §102(e) as being anticipated by Krumel *et al.* It is these rejections which are being appealed.

(7) Argument

DOUBLE PATENTING REJECTION

In the Final Rejection of February 6, 2008, the examiner has repeated the same rejection issued in the Final Rejection dated January 10, 2007 concerning double patenting over Krumel *et al.*

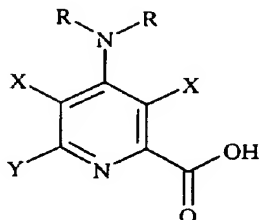
In the first bullet point, the examiner states that previous rejections are withdrawn because the claims, as amended, overcome the rejections. The previous rejections included 1) a double patenting rejection based on Krumel *et al.*; and 2) a rejection under 35 U.S.C. § 102 (e) based on Krumel *et al.*

In the very next bullet point, the Examiner renews the rejection based on Krumel *et al.*, ostensibly because the previous declarations filed by applicants fail to cover claimed compounds.

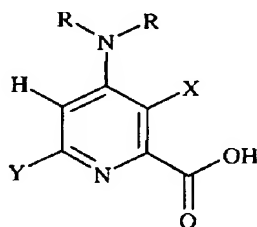
Then, in the last bullet point, despite disregarding the previous declarations because they fail to cover claimed compounds, the examiner asserts that the objective evidence of nonobviousness is not commensurate with the scope of the claims and a showing limited to a single species is not probative of nonobviousness in view of the breadth of the claims.

This same format has been repeatedly used by the examiner with no more rationale than a restatement that the declarations and arguments previously presented have not been found persuasive.

As pointed out previously by the Appellants, Krumel *et al.* discloses starting materials of the formula



wherein X represents Cl or Br, Y represents H, F, Cl, Br or C₁-C₄ alkyl, and R represents H or C₁-C₄ alkyl and final products of the formula

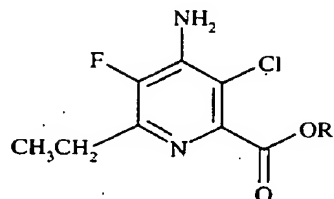


wherein X, Y and R are similarly defined.

Krumel *et al.* does not claim these compounds but rather the method of making one from another. Claims 1, 3 and 4 have now been limited to those compounds in which X = F. Krumel *et al.* does not disclose or suggest such materials because it is not possible to prepare the products (X = H) by the claimed process from a starting material in which X = F. Thus the compounds of Claim 1, 3 and 4 in which X = F are not obvious from Krumel *et al.*

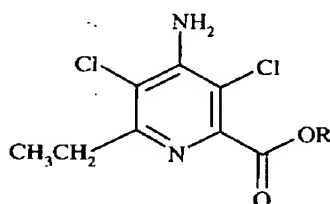
Furthermore, the compounds of Claims 1, 3 and 4 in which X = F are patentably distinct from the products of the process of Krumel *et al.* in which X = H. Contrary to the examiners assertion that the previous declarations filed by the Appellants fail to cover the claimed compounds (X = F), the affidavit under 37 C.F.R. § 1.132 by Mr. Paul Schmitzer provided with Response B dated May 3, 2005 (Appendix II) shows the unexpected efficacy of compounds in which X = F compared to both those in which X = H or Cl.

Compounds F-1 and F-2 are the methyl ester ($R = CH_3$) and acid ($R = H$) respectively of

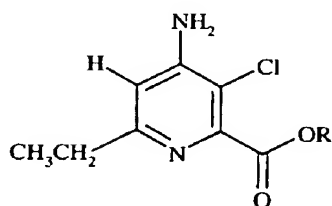


These are clearly compounds within the scope of Claims 1, 3 and 4 ($X = F$, $Y = C_2$ alkyl, and $R = H$ or CH_3 (agriculturally acceptable derivative of carboxylic acid as defined at page 4 line 13 through page 5 line 2 and page 6 line 1 through page 6 line 10 of the specification)).

The affidavit also provides comparative data to both Cl-1 and Cl-2, the methyl ester ($R = CH_3$) and acid ($R = H$) forms respectively of a starting material of Krumel *et al.*



and to both H-1 and H-2, the methyl ester ($R = CH_3$) and the acid ($R = H$) form respectively of a product of Krumel *et al.*



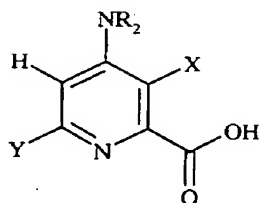
A comparison of the post-emergent GR_{80} values for F-1 and F-2 versus Cl-1 and Cl-2 demonstrate that the compounds of the present invention (<31 g/ha for F-1; <31 g/ha for F-2) are more efficacious against broadleaf weeds than the starting

materials of Krumel *et al.* (61 g/ha for CI-1; 70 g/ha for CI-2). The compounds of the present invention are at least about 2 times more active than the prior art compounds. Similarly in pre-emergent comparisons of GR₈₀ values, the compounds of the present invention (<17.5 g/ha for F-1; 21 g/ha for F-2) are at least about 2 times more active than the prior art compounds (43 g/ha for CI-1; 42 g/ha for CI-2).

The same affidavit provides a comparison of F-1 and F-2 with the products of Krumel *et al.*, H-1 and H-2. A comparison of the pre-emergent GR₈₀ and GR₅₀ values for F-1 and F-2 versus H-1 and H-2 demonstrate that the compounds of the present invention (<17.5 g/ha and 34 g/ha for F-1; 21 g/ha and 74 g/ha for F-2) are more efficacious against both broadleaf and grass weeds than the products of Krumel *et al.* (548 g/ha and >500 g/ha for H-1; 222 g/ha and >500 g/ha for H-2). The compounds of the present invention are about 10 times more active than the prior art compounds.

Thus the compounds of Claims 1, 3 and 4 of the present invention are patentably distinct from Krumel *et al.*

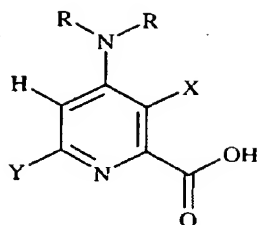
With respect to Claims 5 (herbicidal compositions) and 6 (methods of use), Krumel *et al.* neither teaches nor suggests that its products where Y is C₁-C₄ alkyl



have any herbicidal activity.

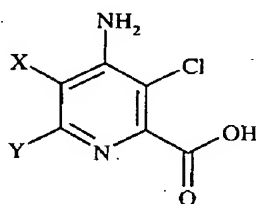
After asserting that the affidavits fail to cover the claimed compounds, the examiner then contends that a single species is not commensurate with the scope of the claims.

First, with respect to Krumel *et al.*, the only relevant compounds disclosed are of the following formula



where X is Cl, Y is C₁-C₄ alkyl and R is H or C₁-C₄ alkyl. This is a relatively limited scope for the prior art.

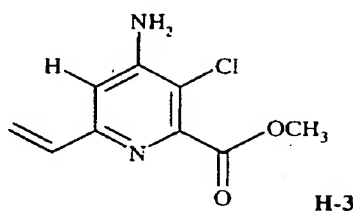
As taught at page 4 of the present specification, the gist of the present invention is the herbicidal activity of the compounds of the formula



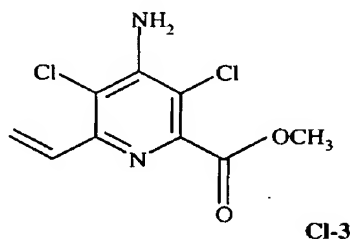
wherein X is H or F and Y is C₁-C₄ alkyl, C₁-C₄ alkoxy substituted C₁-C₄ alkyl, C₁-C₄ thioalkoxy substituted C₁-C₄ alkyl or C₂-C₃ alkenyl. Derivatives of the 4-amino group and the 2-carboxylic acid group of the compounds of the present invention would be expected to reflect comparable benefits over the corresponding derivatives of the prior art compounds. This is in fact demonstrated in Mr. Schmitzer's affidavit of May 3, 2005 where comparable advantages are illustrated for both the free acid (F-2) and the methyl ester (F-1) compared to the corresponding prior art free acids (H-2 and Cl-2) and methyl esters (H-1 and Cl-1). Thus the scope of the present claims is not unduly broad relative to the showings with respect to the 6-ethyl compounds, which would be expected to fairly represent the activity of the definition of substituent Y, at least for C₁-C₄ alkyls and their alkoxy and thioalkoxy substituted derivatives.

While the appellants do not concede that Krumel *et al.* teaches or suggests that the 6-alkyl substituents on the pyridine ring may be unsaturated, to more fully illustrate the scope of the showing over the prior art, the Appellants submitted an Affidavit under 37 C.F.R. § 1.132 by Mr. Paul Schmitzer of November 15, 2007 (Appendix II). In this affidavit, the herbicidal activity of:

Methyl 4-amino-3-chloro-6-vinylpyridine-2-carboxylate

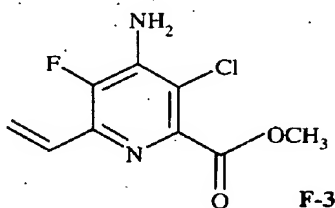


Methyl 4-amino-3,5-dichloro-6-vinylpyridine-2-carboxylate



the closest prior art compounds arguably suggested by Krumel *et al.*, are compared to

Methyl 4-amino-3-chloro-5-fluoro-6-vinylpyridine-2-carboxylate



the analogous 5-fluoro substituted compound of claim 1.

As indicated in Mr. Schmitzer's affidavit, the vinyl analog of the present invention F-3 (GR₈₀ pre 79; GR₈₀ post 95) is unexpectedly more active than the corresponding analogs suggested by the prior art, H-3 (GR₈₀ pre 709; GR₈₀ post 387) and Cl-3 (GR₈₀ pre 939; GR₈₀ post >500).

The examiner criticized this affidavit a) for being unclear as to which compound was claimed, b) for no concluding remarks on what has been shown unexpected, c) for no identification of the reference of the compounds, and d) providing data for F-3, an ester outside the scope of the claims. Firstly, the affiant, Mr. Paul Schmitzer, attested only to the experiments he conducted or directed and the

the results he observed. It is inappropriate for the affiant, a biochemist, to make legal conclusions about patentability in his affidavit. That is the task of the patent attorney. As noted in the immediately preceding paragraphs, a passage copied almost directly from the Response of November 15, 2007, F-3, the 5-fluoro substituted compound of claim 1 was compared to H-3 and Cl-3, the closest prior art compounds arguably suggested by Krumel *et al.* These compounds are not specifically disclosed in Krumel *et al.*; there is no specific prior art reference to them. The unexpected result was explained:

“As indicated in Mr. Schmitzer’s affidavit, the vinyl analog of the present invention F-3 (GR₈₀ pre 79; GR₈₀ post 95) is unexpectedly more active than the corresponding analogs suggested by the prior art, H-3 (GR₈₀ pre 709; GR₈₀ post 387) and Cl-3 (GR₈₀ pre 939; GR₈₀ post >500).”

F-3 is about 10X more active pre-emergent than H-3 and Cl-3 about 4X more active post-emergent. Finally, claim 1 includes “agriculturally acceptable derivatives of the carboxylic acid group”; agriculturally acceptable derivatives of the carboxylic acid group are defined at page 4 line 13 through page 5 line 2 and page 6 line 1 through page 6 line 10 of the specification. They include esters like the methyl ester F-3.

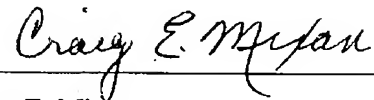
Based on the above remarks, Claims 1 and 3-6 are not obvious in view of Krumel *et al.*

CLAIM REJECTIONS – 35 U.S.C. § 102(e)

This rejection was repeated again without acknowledgement or rebuttal of Appellants’ previous response. As pointed out previously, Claims 1 and 3-6 have been rejected under 35 U.S.C. § 102(e) as anticipated by Krumel *et al.* As remarked above, Krumel *et al.* does not render obvious let alone anticipate Claim 1, nor Claims 3 and 4 which depend upon Claim 1, because they neither disclose nor suggest compounds in which X = F. In addition, Krumel *et al.* does not disclose the herbicidal compositions and use of the compounds of Claims 5 and 6 in which X = H or F and Y = C₁-C₄ alkyl. Thus, the claims of the present invention fulfill the requirements of 35 U.S.C. § 102 and are not anticipated.

It is earnestly submitted that the controlling facts in the present record fail to support a conclusion of anticipation under 35 U.S.C. § 102(e) or a conclusion of non-statutory obviousness-type double patenting. The Appellants believe that the Examiner has erred in the interpretations of law and in the interpretations of the teachings of the prior art. Consideration of the foregoing remarks and reversal of the Final Rejection of Claims 1 and 3-6 is respectfully requested.

Respectfully submitted,



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Registration No. 32,709
Phone: (317) 337-4812

Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, Indiana 46268

March 10, 2008

Appendix I

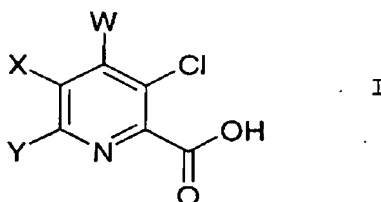
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Listing of Claims

WHAT IS CLAIMED IS:

1. (Previously presented) A compound of the formula I



wherein

X represents F;

Y represents C₁-C₄ alkyl, C₁-C₄ alkoxy substituted C₁-C₄ alkyl, C₁-C₄ thioalkoxy substituted C₁-C₄ alkyl, or C₂-C₃ alkenyl; and

W represents -NO₂, -N₃, -NR₁R₂, -N=CR₃R₄ or -NHN=CR₃R₄

wherein

R₁ and R₂ independently represent H, C₁-C₆ alkyl, C₃-C₆ alkenyl, C₃-C₆ alkynyl, aryl, hydroxy, C₁-C₆ alkoxy, amino, C₁-C₆ acyl, C₁-C₆ carboalkoxy, C₁-C₆ alkylcarbonyl, C₁-C₆ alkylsulfonyl, C₁-C₆ trialkylsilyl or C₁-C₆ dialkyl phosphonyl; and

R₃ and R₄ independently represent H, C₁-C₆ alkyl, C₃-C₆ alkenyl, C₃-C₆ alkynyl or aryl; and

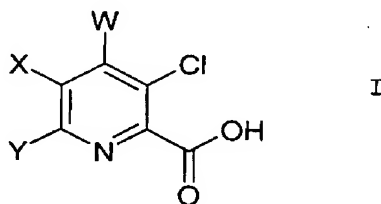
agriculturally acceptable derivatives of the carboxylic acid group or the 4-amino group.

2. (Canceled)

3. (Previously presented) The compounds of Claim 1 in which Y represents CH_3 or CH_2CH_3 .

4. (Original) The compounds of Claim 1 in which W represents NR_1R_2 where R_1 and R_2 independently represent H or $\text{C}_1\text{-C}_6$ alkyl.

5. (Previously presented) A herbicidal composition comprising a herbicidally effective amount of a compound of formula I



wherein

X represents H or F;

Y represents $\text{C}_1\text{-C}_4$ alkyl, $\text{C}_1\text{-C}_4$ alkoxy substituted $\text{C}_1\text{-C}_4$ alkyl, $\text{C}_1\text{-C}_4$ thioalkoxy substituted $\text{C}_1\text{-C}_4$ alkyl, or $\text{C}_2\text{-C}_3$ alkenyl; and

W represents $-\text{NO}_2$, $-\text{N}_3$, $-\text{NR}_1\text{R}_2$, $-\text{N}=\text{CR}_3\text{R}_4$ or $-\text{NHN}=\text{CR}_3\text{R}_4$

wherein

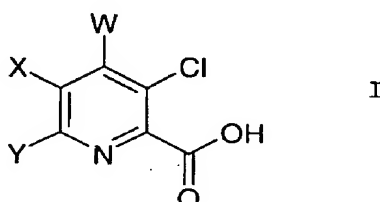
R_1 and R_2 independently represent H, $\text{C}_1\text{-C}_6$ alkyl, $\text{C}_3\text{-C}_6$ alkenyl, $\text{C}_3\text{-C}_6$ alkynyl, aryl, hydroxy, $\text{C}_1\text{-C}_6$ alkoxy, amino, $\text{C}_1\text{-C}_6$ acyl, $\text{C}_1\text{-C}_6$ carboalkoxy, $\text{C}_1\text{-C}_6$ alkylcarbamyl, $\text{C}_1\text{-C}_6$ alkylsulfonyl, $\text{C}_1\text{-C}_6$ trialkylsilyl or $\text{C}_1\text{-C}_6$ dialkyl phosphonyl; and

R_3 and R_4 independently represent H, $\text{C}_1\text{-C}_6$ alkyl, $\text{C}_3\text{-C}_6$ alkenyl, $\text{C}_3\text{-C}_6$ alkynyl or aryl; and

agriculturally acceptable derivatives of the carboxylic acid group or the 4-amino group

in admixture with an agriculturally acceptable adjuvant or carrier.

6. (Previously presented) A method of controlling undesirable vegetation which comprises contacting the vegetation or the locus thereof with or applying to the soil to prevent the emergence of vegetation an herbicidally effective amount of a compound of formula I



wherein

X represents H or F;

Y represents C₁-C₄ alkyl, C₁-C₄ alkoxy substituted C₁-C₄ alkyl, C₁-C₄ thioalkoxy substituted C₁-C₄ alkyl, or C₂-C₃ alkenyl; and

W represents -NO₂, -N₃, -NR₁R₂, -N=CR₃R₄ or -NHN=CR₃R₄

wherein

R₁ and R₂ independently represent H, C₁-C₆ alkyl, C₃-C₆ alkenyl, C₃-C₆ alkynyl, aryl, hydroxy, C₁-C₆ alkoxy, amino, C₁-C₆ acyl, C₁-C₆ carboalkoxy, C₁-C₆ alkylcarbamyl, C₁-C₆ alkylsulfonyl, C₁-C₆ trialkylsilyl or C₁-C₆ dialkyl phosphonyl; and

R₃ and R₄ independently represent H, C₁-C₆ alkyl, C₃-C₆ alkenyl, C₃-C₆ alkynyl or aryl; and

agriculturally acceptable derivatives of the carboxylic acid group or the 4-amino group.

Appendix II

Evidence Appendix

- A. Affidavit under 37 C.F.R. § 1.132 by Mr. Paul Schmitzer provided with Response B dated May 3, 2005.
- B. Affidavit under 37 C.F.R. § 1.132 by Mr. Paul Schmitzer provided with Response dated November 15, 2007.

Appendix III

Related Proceedings Appendix

Not Applicable.